

CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI, CHHATTISGARH

DIPLOMA PROGRAMME IN ELECTRONICS & TELE-COMMUNICATION ENGINEERING

Semester – II

COURSE OF STUDY AND SCHEME OF EXAMINATION

S. No	Board of Study	Subject Code	Course	Periods/Week			Scheme of Examination					Credit L+(T+P)/2	
				L	T	P	Theory			Practical			Total Marks
							ESE	CT	TA	ESE	TA		
1	Humanities	200211 (46)	Communication Skills – II	4	1	-	100	20	20	-	-	140	5
2	Basic Science	200212 (14)	Applied Maths – II	3	1	-	100	20	20	-	-	140	4
3	Computer Science and Engg.	200214 (22)	Computer Fundamentals and its Applications	4	1	-	100	20	20	-	-	140	5
4	Civil Engg	200218 (20)	Environmental Engineering	3	1	-	100	20	20	-	-	140	4
5	Electrical Engg	228111(24)	Fundamentals of Electrical Engg.	4	2	-	100	20	20	-	-	140	5
6	Computer Science and Engg.	200221 (22)	Computer Fundamentals and Applications Lab	-	-	6	-	-	-	100	20	120	3
7	Humanities	200224 (46)	PPA	-	-	2	-	-	-	-	40	40	1
8	Electrical Engg	228221(24)	Fundamentals of Electrical Engg. Lab	-	-	4	-	-	-	100	40	140	2
TOTAL				18	6	12	500	100	100	200	100	1000	29

PPA – Proficiency in Professional Activity

L : Lecture : T : Tutorial, P : Practical

ESE – End of Semester Exam.; CT – Class Test; TA- Teacher’s Assessment ;

**CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY,
BHILAI**

SEMESTER : **II**
COURSE TITLE : **COMMUNICATION SKILLS -II**
THEORY CODE : **200211 (46)**
BRANCH / DISCIPLINE : **ALL DISCIPLINES**

Minimum number of class tests to be conducted: 2

DISTRIBUTION OF MARKS AND HOURS:

S. No.	Chapter No.	Chapter Name	No. of Hours/Periods	Marks
1	1	PASSAGES FOR COMPREHENSION	10	20
2	2	APPLIED GRAMMAR	25	25
3	3	PASSAGES IN GENERAL STUDIES	10	15
4	4	TECHNICAL WRITING	17	20
5	5	LETTER WRITING	18	20
		TOTAL	80	100

DETAILED COURSE CONTENTS:

Chapter –1 : PASSAGES FOR COMPREHENSION

- Taming the Atom
- Radar and its Uses
- A Volcano
- Precision – A Measure of Progress
- Laser

Chapter –2 : APPLIED GRAMMAR

- Basic Sentence Pattern
- Infinitives
- Narration
- Common Errors
- Modifiers
- Paragraph Writing

Chapter –3 : PASSAGES IN GENERAL STUDIES

- Salient Features of the Indian Constitution
- Structure of Government
- Functioning of an Economic System
- Production and Productivity by
- Professional Ethics

Chapter –4: TECHNICAL WRITING

- Technical Writing
 - a. A Communication Skill
 - b. Basic facts of Technical Writing
- Main Features of Technical Writing
 - a. Features of Technical Writing
 - b. Style: Literary and Technical
 - c. Mechanics of Technical Writing
- Forms of Technical Writing
 - a. Forms
 - b. Writing Definitions
 - c. Writing Technical Descriptions
 - d. Writing Technical Descriptions of Processes
 - e. Writing Instructions
- . Writing Technical Reports
 - a. Qualities of a Good Report
 - b. Forms of Reports
 - c. Types of Reports

Chapter –5 : LETTER WRITING

- Introduction
- Purposes of Letters
- Characteristics of a Letter
- Mechanics and Style
- Types of Business Letters
 - Letter of Enquiry
 - Answer to an Enquiry

INSTRUCTIONAL STRATEGIES

- Regular assignments should be given on every topics.
- Arranging expert lecture on specific topics.
- Assessment of term work of conduction of minimum two progressive tests during the session.
- Use of Audio-Visual aids.
- Group Discussions.
- Paper Presentation on different topic.

LIST OF TUTORIALS

- Group discussion and seminar
- Small report writing
- Translation works
- Practice of various letter writing / precise writing / essay writing

LEARNING RESOURCES

(a) Reference Books:

Sl.No.	Title	Author, Publisher, Edition & Year
1	Business Communication	Asha Kaul, Prentice Hall of India Pvt.Ltd, New Delhi
2	A Course in Technical English, Book-I	Somaiya Publication Pvt. Ltd. Bombay
3	A Course in Technical English, Book-II	Somaiya Publication Pvt. Ltd. Bombay
4	Living English Structure	W.S Allen
5	Practical English Grammar	Thomos and Martinet
6.	Essentials of English & Business Communication.	Rajendra Pal, J.S Korlahalli S.Chand & Sons, New Delhi.
7.	Grammar & Composition	P R Sarkar, Anand Marg Publication, Easter, Matropolition Calcutta
8.	How To Write Correct English	R P Sinha, Bharti Bhavan Publication, Patna
9	English Errors of Indian Students	Oxford University Publication, By TLH Smith Pearse
10	Passages in General Studies	Vikas Publication, Bhopal

(b) Others:

- VCD
- OHP Transparencies
- Computer Aided Instructional Packages
- Video/Audio Cassettes

**CHHATTISGARH SWAMI VIVEKANAND TECHNICAL
UNIVERSITY, BHILAI**

SEMESTER : **II**
COURSE TITLE : **APPLIED MATHEMATICS-II**
THEORY CODE : **200212 (14)**
BRANCH/DISCIPLINE : **CIVIL/MECH./ELECTRICAL/
METALLURGY/COMPUTER SCIENCE &
ENGINEERING/INFORMATION
TECHNOLOGY/INSTRUMENTATION/ELEX.
& TELCOMMUNICATION**

Minimum number of class tests to be conducted: 2

DISTRIBUTION OF MARKS AND HOURS:

Chapter No.	Chapter Name	No. of Hours/ Periods	Marks
1.	NUMERICAL ANALYSIS	02	4
2.	FINITE DIFFERENCES	04	6
3.	NUMERICAL DIFFERENTIATION & INTEGRATION	06	10
4.	DIFFERENCE EQUATION	08	10
5.	MATRICES	12	20
6.	SIMPLE INTEGRATION	12	20
7.	FORMATION OF DIFFERENTIAL EQUATION	15	20
8.	LAPLACE TRANSFORMATION	05	10
TOTAL		64	100

DETAILED CONTENT

Chapter – 1 : NUMERICAL ANALYSIS

- Bisection Method
- False Position Method
- Newton-Raphson Method

Chapter – 2 FINITE DIFFERENCES

- Interpolation forward differences
- Backward differences
- Factorial Polynomial
- Newton’s Forward interpolation, formula for equal intervals
- Sterling Formula (Central Difference)
- Newton’s Backward Formula
- Lagrange’s interpolation formula for unequal intervals.

Chapter – 3 : NUMERICAL DIFFERENTIATION & INTEGRATION

- Numerical Differentiation (Forward & Backward Difference formula)
- Numerical Integration by Trapezoidal & Simpson’s Rule

Chapter – 4 : DIFFERENCE EQUATION

- Order of a difference equation
- Solution of Difference equation
- Complementary Section
- Particular Integral.

Chapter – 5 : MATRICES

- Introduction
- Definition
- Special Matrices
- Addition and Subtraction of Matrices
- Multiplication of Matrices
- Transpose of a Matrix
- Symmetric & Skew Symmetric Matrix
- Ad-joint of a Square Matrix
- Inverse of Matrix
- Solution of simultaneous Linear equations
- Rank of Matrix
- Consistency of Linear System of Equations

Chapter – 6 : SIMPLE INTEGRATION

- Introduction, Definition
- Method of substitution
- Integration by parts
- Integration by Partial Fraction Method
- Integration of the form and Reduction Formula.
- Definite Integral – Introduction
- Theorems Definite Integrals

- Gamma function

Chapter – 7 : FORMATION OF DIFFERENTIAL EQUATION

- Differential Equations
- Definition
- Order and Degree of Differential Equations
- Formation of Differential Equations
- Solution of a Differential Equation
- Differential Equation of the first order and first degree
- Variable Separable
- Homogeneous Differential Equations
- Equations Reducible to Homogeneous form
- Linear Differential Equations
- Equations Reducible to the Linear Form
- Exact Differential Equations
- Equation Reducible to the Exact Equations
- Second order Linear Differential Equation with constant coefficient –
Complementary function particular integral

Chapter – 8 : LAP LACE TRANSFORMATION

- Definition, Transforms of Elementary functions
- Properties of Lap lace transforms
- Transform of Derivatives
- Transform of Integral

INSTRUCTIONAL STRATEGIES:

- Chalk and talk method to explain various laws, theorems etc.
- Expert Lecture
- Demonstration and use of log tables
- Classroom practices for different typical exercises
- Use of derivation and formulas.

LEARNING RESOURCES

(a) Reference Books :

Sl. No.	Title	Author, Publisher, Edition & Year
1	Introductory Method of Numerical Analysis	Sastry S. S. (, PHI)
2	Mathematical Statistics	Ray and Sharma
3	Discrete Mathematics	Liu CL (Tata Mc Graw Hill)
4	Linear Programming	Srinath L.S. (East-West Press)
5	Set Theory and Related Topics Schum's Out Line Series	Tata Mc Graw Hill, New Delhi.
6	Finite Differences and Numerical Analysis	Saxena H.C.
7	Modern Algebra	Sharma and Seth (Ram Prasad and Sons)
8	Computer Oriented Numerical Methods, PHI	Raja Raman V. (PHI)

(b) Others:

- Practice sheets
- Learning Packages
- Work book

**CHHATTISGARH SWAMI VIVEKANAND TECHNICAL
UNIVERSITY, BHILAI**

SEMESTER : **II**
COURSE : **COMPUTER FUNDAMENTALS AND ITS
APPLICATIONS**
THEORY CODE : **200214 (22)**
BRANCH/DISCIPLINE : **CIVIL/MECHANICAL/ELECTRICAL/
METALLURGICAL/INSTRUMENTATION
/ELEX. AND TELECOMMUNICATION/
MINING AND MINE SURVEYING**

Minimum number of class tests to be conducted: 2

DISTRIBUTION OF MARKS AND HOURS

Chapter No.	Chapter Name	No. of Hours/ Periods	Marks
1.	INTRODUCTION TO COMPUTERS	6	10
2.	MICROCOMPUTER	7	10
3.	DATA REPRESENTATION	6	10
4.	NUMBER SYSTEM	10	10
5.	COMPUTER LANGUAGE	7	10
6.	INTRODUCTION TO DOS OPERATING SYSTEM	8	10
7.	INTRODUCTION TO WINDOWS OPERATING SYSTEM	10	10
8.	COMPUTER APPLICATIONS	10	10
9.	INTERNET APPLICATIONS	8	10
10.	INTERNET CONNECTIVITY	8	10
	Total	80	100

DETAILED COURSE CONTENT

CHAPTER - 1

INTRODUCTION TO COMPUTERS

- Generations Of Computer.
 - First, Second, Third and Fourth generationHard Ware, Soft Ware , Firm Ware with Examples.
- Classification & Applications Of Computers.
 - Micro, Mini, Mainframes and Super- Computers
 - Applications of computers

CHAPTER - 2

MICROCOMPUTER

Structure & Working of Micro-Computers

Block diagram of computer

- Central Processing Unit
- Memory Unit
- Input & Output Devices

CHAPTER – 3

DATA REPRESENTATION

- Number Systems.
 - Types of number systems- Binary, Octal, Decimal, Hexadecimal
 - Bit Byte ,Nibble, ASCII code,Bcd,Gray,Excess-3,EBCDIC.

CHAPTER – 4

NUMBER SYSTEM CONVERSION & ITS OPERATIONS

- Binary addition, subtraction
 - BCD addition, subtraction.
 - 1's complement and 2's complement methods of subtraction.

COMPUTER LANGUAGES

CHAPTER – 5

- Classification and characteristics of languages.
 - Machine language.
 - Assembly language
 - High level language
- Computer Hardware
- Classification of Software: and firmware
 - System software: O.S. Loader, Linker, Interpreter, Compiler and Assembler
 - Application Software

CHAPTER – 6

INTRODUCTION TO OPERATING SYSTEMS

- Micro-Soft Disk Operating System (MS-DOS)
 - System files: BIOS, COMMAND.COM, CONFIG.SYS, Autoexec.bat file
- MS-DOS Commands.
 - Internal Commands- dir, cd, md, rd, del, ren, date, time, vol. And copy
 - External commands – attrib, format, edit, find, diskcopy, backup & Restore

CHAPTER – 7

INTRODUCTION TO WINDOWS OPERATING SYSTEM.

- Concept of Windows-Arranging, Moving, Resizing, Opening, and Closing of windows
- Folder/ File Management-Search, copy, delete and rename files

and folders

- Windows Accessories: Notepad, Word Pad, Paint

COMPUTER APPLICATIONS SOFTWARE

CHAPTER – 8

- Word processing software
 - MS-WORD
- Data analysis software
 - MS-EXCEL Introduction to electronic spreadsheet
- Presentations software
 - MS-POWER POINT

INTERNET TECHNOLOGY

CHAPTER – 9

- Introduction To Internet.
- Different Services Of Internet.
 - www
 - Email
 - Chat (textual /voice)
 - Bulletin Boards
 - Video conferencing
 - FTP(uploading and downloading files)
- Web-Site Access And Information Search.
 - Browsers and search engines.

INTERNET CONNECTIVITY.

CHAPTER – 10

- Internet Service Provider (ISP)
- Internet accounts : Shell account, TCP/IP ISDN and Leased Line
- account and its features
- Hardware Required.
- MODEM and Terminal Adapters.

IMPLEMENTATION STRATEGIES

The subject 'Computer Fundamentals and Applications' is designed to make the student familiar with computer technology and its applications.

- Chapters 1 to 5 deals with the basics and concepts of computers technology Chapter 6 & 7 deals with the Operating System and Chapter 8 to 10 deals with the application of computers for office automation and Internet technology.
- The subject is expected to be taught as per the teaching scheme and weightage of marks allotted for topics in theory as well as practical.
- Chapters 6 to 10 should be covered during the practical sessions.

The students should be given maximum hands on practice to develop skills in operating computer systems and working with different application software. Assignments should be given on real time applications. More assignments can be given as per the availability of time. For effective teaching/learning it is expected that list of questions based on related topics may be given.

PRACTICAL

Practical Code : 200221 (22)

No. of Hours/Periods: 96

LIST OF PRACTICAL / TUTORIALS:

- Study of input and output devices
- Study of storage devices
- Practice on internal and external MS-DOS commands
- Practice on Windows 95/98/2000
 - Starting Windows, Exploring the desktop, Arranging windows, My Computer, The start button, Creating Shortcuts, Practice on moving and sizing of windows
 - Study of file organization: creating, copying, moving, renaming and deleting
 - Practice on Windows Accessories- Notepad, Word Pad and Paint
 - Editing document & formatting text, Previewing and printing document/Image file
 - Practice on Windows Explorer
 - Recycle bin
 - Shutting down windows
- Practice on MS-Word
 - Create and format document
 - Edit and Modify text- changing font size type and style
 - AutoText, AutoComplete, AutoCorrect, grammar and spellchecker, Find and replace of text
 - Open save and print a document
 - Insert, modify table
- Practice on Microsoft Excel
 - Create, save & format worksheet
 - Open and save worksheet file
 - edit & modify data
 - use formula and functions
 - split windows and freeze pans
 - Create, edit, modify, print worksheet/charts .
- Practice on PowerPoint

- Create, edit, insert, move, slides
- Open and save presentation
- Insert picture, slide layout, action button
- Present slide show
- Practice on:
 - Identification of type of Account.
 - Connecting to internet
 - Dial up access
 - Web browsing
 - Searching websites
 - Information searching
 - Email services
 - Creating email accounts & Receiving and sending mails

LEARNING RESOURCES

a) Reference Books

S.No.	Title	<i>Author</i> Publisher & Address, Edition Year
1.	Introduction to Computers	Peter Norton's, Tata McGraw Hills Publishing Co.l Ltd. N. Delhi, Ind Edition, 1998
2.	The ABCs of Ms-Office 97	Gay Hart Davis, BPB Publications N. Delhi, Ist Edition 1996
3.	Computer Organization and Architecture	William Stalling, Prentice Hall of India Pvt.Ltd , N.Delhi, IV th - Edition, 1999
4.	Structured computer Organization	Andrews Tanenbaum, Prentice Hall of India Pvt.Ltd, N.Delhi, III rd- Edition, 1997
5.	Teach yourself.... Windows 95	AL Stevens Comer,BPB Publication, N.Delhi, I st – Edition, 1995
6.	The Internet Book	Douglas E., Prentice Hall of India Pvt.Ltd, N.Delhi, II – Edition, 2000
7	Computer Today	S.K.Basanbhara, Galgotia Publication, 1 st Edition, 2000

b) Others

1. Lab manuals (if any)
2. CAI packages (if any)
3. OHP transparencies Models (if any)

**CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY,
BHILAI (C.G.)**

SEMESTER : **II**
COURSE TITLE : **ENVIRONMENTAL ENGINEERING**
THEORY CODE : **200218 (20)**
BRANCH / DISCIPLINE : **ELECTRONICS & TELECOMMUNICATION**

Minimum number of class tests to be conducted: 2

DISTRIBUTION OF MARKS AND HOURS:

S. No.	Chapter No.	Chapter Name	No. of Hours/ Periods	Marks
1	1	INTRODUCTION AND GLOBAL WARMING	05	5
2	2	AIR, QUALITY, DEFINITIONS, CHARACTERISTICS AND PERSPECTIVES	05	10
3	3	METROLOGY AND NATURAL PURIFICATION PROCESSES	05	8
4	4	ENGINEERED SYSTEM FOR AIR POLLUTION CONTROL	06	10
5	5	ENGINEERING SYSTEM FOR RESOURCES AND ENERGY RECOVERY	06	10
6	6	NOISE POLLUTION AND CONTROL	05	10
7	7	INDUSTRIAL WASTE	08	13
8	8	ENVIRONMENT & POLLUTION CONTROL LAWS	08	12
9	9	AIR POLLUTION FROM THERMAL POWER PLANTS ETC.	08	12
10	10	WATER CONTAMINATION IN OCEAN	08	10
		TOTAL	64	100

DETAILED COURSE CONTENTS:

Chapter – 1 : INTRODUCTION AND GLOBAL WARMING

- The Environment
- The impact of human being upon the environment
- The impact the Environment upon human beings
- Improvement of Environment quality
- The role of the Environmental engineer
- Global warming -reasons.

Chapter- 2 : AIR QUALITY: DEFINITIONS, CHARACTERISTICS & PERSPECTIVES

- Air pollution-Historical overview
- Global Implication of pollution
- Units of measurement
- Sources of pollutants. .
- **Classification Of Pollutants**
 - **Particulates hydrocarbons,**
 - **Carbon monoxide**
 - **Oxide of Sulphur**
 - **Oxides of Nitrogen**
 - **Photochemical oxidants**
 - **Indoor air pollution**

 - **Measurements of above pollutants.**
- Air quality managements concepts.

Chapter -3 : METROLOGY AND NATURAL PURIFICATION PROCESS

- Elemental properties of the atmosphere - Scales of motion
- Heat pressure, wind, moisture, Relative humidity.
- Devices used for the measurement of above properties.
- Influence of Metrological phenomena on air quality & dispersion
- Pressure system & Dispersion Winds & dispersion moisture and dispersion, modelling.
- Effects of Air pollution metrological conditions-changes on the Mesoscale & Micro scale, changes on Micro scale.

Chapter -4 : ENGINEERED SYSTEMS FOR AIR POLLUTION CONTROL

- Atmospheric cleansing processes
- Approaches to contaminant control.
- Central devices for particulate contaminants Gravitational settling chambers
- Centrifugal collectors, wet collectors
- Fabric filters (Baghouse filters) Electrostatic precipitators (ESP) control devices for gaseous contaminants-absorption
- Condensation, combustion, Automotive emission control.

Chapter - 5 : ENGINEERED SYSTEMS FOR RESOURCE AND ENERGY RECOVERY

Processing techniques -

- Mechanical size alteration, Mechanical component separation
- Magnetic & Electromechanical separation
- Drawing and Dewatering
- Materials recovery systems -Materials specifications, processing and recovery systems
- Recovery of biological conversion products-Composting (Aerobic conversion)
- Anaerobic Digestions
- Recovery of Thermal conversion products
- Combustion of waste materials
- Incineration with heat recovery, use of refuse Derived fuels (RBF), Gasification, pyrolysis
- Recovery of energy from conversion products energy
- Recovery systems, Efficiency-factors
- Determination of energy output and efficiency
- Materials and energy-Recovery systems.

Chapter – 6 : NOISE POLLUTION AND CONTROL

- Sources of noise pollution
- Control of noise pollution
- Unit of noise measurement
- Noise intensity level-allowable limit for different situations
- Noise measurement
- The problem of noise pollution and legal measures for it's control.

Chapter – 7 : INDUSTRIAL WASTES

- Industrial Waste treatment
- Economics of waste treatment benefits of pollution abatement (primary, secondary and intangible benefits)
- Difficulties in achieving pollution abatement through industrial waste treatment
- Theories of waste treatment of specific – industrial waste such as textile, dairy paper and pulp, and distillery waste.

Chapter – 8 : ENVIRONMENTAL AND POLLUTION CONTROL LAWS

- Air (prevention and control of pollution) Act, 1981 and Air (prevention and control of pollution Rules 1982 short title extant and commencement definitions
- The environment (Protection) Act 1986 short title extent and commencement
- Definitions, Measures to protection and improve environment.

CHAPTER -9 : AIR POLLUTION FROM THERMAL POWER PLANTS

- Nuclear Power Plants
- Fertilizer And chemical plants
- Acid rain, Methods of prevention,
-

Chapter –10 : WATER CONTAMINATION IN OCEAN

- Reasons, it's effects
- Method of prevention.

INSTRUCTIONAL STRATEGIES:

- Demonstration
- Field visit/Industrial visit

LEARNING RESOURCES:

(b) Reference Books:

Sl.No.	Title	Author, Publisher, Edition & Year
1	Air Pollution	Perkins
2	Liquid waste of industry, theories, practice treatment	Nelson L. Vamerow
3	Management of solid waste in developing countries	Flint Off
4	Environmental Engineering	Peavy, Howards (MC-Graw H Series in Environmental Engineering) (International Ed
5	Air Pollution – It's origin and control	Keneth Work & Warmer (W.H.O. Publication)
6	Industrial waste	Namit
7	Thermal Environment	Burgess H. Jennings
8	Environment & Pollution Control Law	Vijay Malik (EBC Publishing Pvt. Ltd.) Lucknow
9	Environment Protection Problems, Policies Administration	Paras Diwan (Deep & Deep Publication)

(b) Others :

- Lab manuals
- Case Studies
- Models
- OHP transparencies
- Video films on Environment
- ISI Codes
- EPA and Laws

**CHHATTISGARH SWAMI VIVEKANAND TECHNICAL
UNIVERSITY, BHILAI, CHHATTISGARH**

SEMESTER : **II**
COURSE TITLE : **FUNDAMENTALS OF ELECTRICAL
ENGINEERING**
THEORY CODE : **228111 (24)**
BRANCH/DISCIPLINE : **Electronics & Tele-communication**

Minimum number of class tests to be conducted: 2

DISTRIBUTION OF MARKS AND HOURS:

Sl. No.	Chapter No.	Chapter Name	No. of Hours/Periods	Marks
1	1	Basic concepts	05	10
2	2	Electromagnetism	06	10
3	3	A.C. Circuit	10	12
4	4	Polyphase Circuits	08	08
5	5	Transformers	10	10
6	6	D.C. Machines	10	10
7	7	A.C. Motors	14	12
8	8	Single Phase Induction Motor	12	10
9	9	Electrical & Electronic Measurement	14	12
10	10	Electrical Safety	07	06
		Total	96	100

DETAILED COURSE CONTENTS:

Chapter – 1 : BASIC CONCEPTS

- Concept of unit of Electric Current and Voltage: Ohm's Law, Concept of Resistance, Inductance, Resistivity and Conductivity; Their units and dependence on temperature.
- Power & energy heating effect of electric current and conversion of units (Mechanical to Electrical).
- Kirchoff's Voltage and Current Laws & their application in simple D.C. Circuits.
- Series and parallel combination of resistance and wattage considerations. Simple numerical problems.

Chapter – 2 : ELECTROMAGNETISM

- Concept of magnetic field production by flow of current, Concept of m.m.f., flux reluctance, permeability, Analogy between electric & magnetic circuit.
- Faraday's Laws of electromagnetic Induction, Self and mutually induced e.m.f., Simple numerical problems.

Chapter – 3 : A.C. CIRCUIT

- Concept of alternating voltage and current, difference between A.C. and D.C.
- Concept of Cycle, Frequency, Period, Amplitude, Instantaneous Value, Average Value, r.m.s. value and peak value, form factor (definitions only).
- Concept of impedance, phase angle, RL, RC & RLC Series & parallel circuits. Numerical problems

Chapter – 4 : POLY PHASE CIRCUITS

- Three phase A.C. waveform, phase displacement, equations of each phase, Values in each phase at any instant of time, Numerical problems.
- Three phase A.C. circuit with balanced load.

Chapter – 5 : TRANSFORMERS

- Principle of Transformer
- E.M.F. equation
- Transformation ratio, copper loss and core loss, efficiency, numerical problems
- Auto Transformer
- Applications of Transformer and Auto Transformer.

Chapter – 6 : D.C. MACHINES

- Working principle of D.C. Machines
- Constructional Features
- Classification and applications, numerical problems.

Chapter – 7 : A.C. MOTORS

- Introduction of A.C. Motor

- Classification of A.C. Motors
- Construction of 3- ϕ Induction motors
- Working principle of 3- ϕ Induction Motors
- Application of 3- ϕ Induction Motors.
- Introduction of Synchronous Motor

Chapter – 8 : SINGLE PHASE INDUCTION MOTOR

- Working principle of Single Phase Induction Motor.
- Types of Single Phase Induction Motor: Capacitor start, Capacitor start and Capacitor run, Shaded Pole type, Universal Motor.

Chapter – 9 : ELECTRICAL & ELECTRONIC MEASUREMENT

- General description of PMMC, moving iron, dynamometers type instruments.
- Working principle and construction of Ammeters and Voltmeters, extension of range and simple numerical problems.
- Principle and working of Wattmeter (dynamometer type) and Energy meter (Induction type).
- Digital measuring instruments, Seven-segment display and its applications.
- Basic concepts of CRO.

Chapter – 10 : ELECTRICAL SAFETY

- Safety Precaution.
- Effect of Electric Current on Human Body.
- Artificial Respiration.
- Circuit Protection: Fuses, Switches, relays of circuit, MCB, MCCB.
- Earthing.

INSTRUCTIONAL STRATEGIES:

The implementation strategy to teach this course should be a good mix of the various teaching methods like lecture, question answer, assignment and lab. work. More drill and practice to solve numerical problems, home and classroom assignments would prove more useful to develop the analytical skills. As this will be the first exposure to an electrical laboratory, the procedure of lab practices should be in more detail including the safe practices to be followed.

PRACTICAL

PRACTICAL CODE : 228221(24)

NO. OF HOURS/PERIODS: 64

LIST OF PRACTICALS / TUTORIALS:

- Follow Electrical engineering laboratory practices
 - **Supply system & safety.**
 - Introduction to various measuring instruments.
- Verify Ohm's Law.
- Verify KCL & KVL.
- Measure voltage & current in RLC series circuit, Calculate impedance, inductance, capacitance, & power factor, Draw vector diagram.
- **Measure voltage & current in RLC parallel circuit. Also calculate impedance, power factor, and Draw vector diagram.**
- **Use rheostat as Regulator and Potential divider.**
- Identify the different parts of a dismantled motor.
- Identify the different parts of 3-point starter and use it for starting single-phase induction motor.
- Perform open circuit test on single-phase transformer.
- Perform short circuit test on single-phase transformer.
- Calculate transformation ratio of single phase transformer.
- Identify various types of induction motor looking at the constructional details.
- Measure current & voltage in balanced star connection. Also verify the relation of phase and line value of voltage and current.
- Measure current & voltage in balanced Delta connection. Also verify the relation of phase and line value of voltage and current.
- Measure the electrical power and energy in a given circuit.
- Measure active & reactive power in 3-phase balance load circuit by one wattmeter method.
- Use analog and digital multimeter for testing voltage, current and resistance.
- Measure circuit parameters by L.C.R. meter.
- Calculate fusing current of a fuse wire.
- Observe different waveform on C.R.O. to calculate time period, maximum value, cycle, frequency etc. of A.C. waveform.
- Calibrate given voltmeter/ammeter.
- Calibrate energy meter at various P.F. by Standard energy meter

LEARNING RESOURCES.

(b) Reference Books :

Sl. No.	Title	Author, Publisher, Edition & Year
1.	Principles of Electrical Engineering	Bhattacharya, Tata -McGraw-Hill, New Delhi, 1997
2.	Electrical Technology	Cotton, H., ELBS, London, 6 th , 1987
3.	Electrical Application Servicing	Crouse, William H., McGraw Hill, New York, 1 st . 1980
4.	Preventing Electrical Fires & Failures	Hattangadi, A.A., Tata -McGraw-Hill, New Delhi, 2001
5.	Electrical Technology	Hughes, Edward, Longman, 1 st , 1990
6.	Basic Electrical Engineering	Mittle, V.N. Tata McGraw-Hill, New Delhi 1990
7.	Electrical Technology Vol.I	Thareja B.L., Thareja A.K. S. Chand & Company Ltd., New Delhi, 23 rd Edition.
8.	Electrical Technology Vol.II	Thareja B.L., Thareja A.K. S. Chand & Company Ltd., New Delhi, 23 rd Edition.
9.	Electric Machinery and Transformers	Kosow, Prentice-hall, New- Delhi, 2 nd edition
10.	Electrical Engineering Fundamentals	Del Toro, Prentice-hall, New- Delhi, 2 nd Edition
11.	Electrical Engineering- Principles and Applications	Hambley, Prentice-hall, New- Delhi, 2 nd Edition
12.	Electromagnetism: Theory and Applications	Pramanik, Prentice-hall, New- Delhi,
13.	Basic Electrical Engineering	R.K. Rajput
14.	Basic Electrical Engineering	Jain & Jain
15.	Basic Electrical Engineering	Anjali Chakraborty

(c) Others:

- Lab Manuals.
- Charts.

**CHHATTISGARH SWAMI VIVEKANAND TECHNICAL
UNIVERSITY, BHILAI**

SEMESTER : **II**
SUBJECT TITLE : **PROFICIENCY IN PROFESSIONAL
ACTIVITY (PPA)**
CODE : **200224 (46)**
BRANCH/DISCIPLINE : **ALL DISCIPLINES**

DISTRIBUTION OF MARKS AND HOURS:

Chapter No.	Chapter Name	No. of Hours/ Periods	Marks
1	Presentation Skills	8	9
2	Learning To Learn Skills	3	5
3	Study Skills	3	5
4	Information Search	5	5
5	Time Management	3	5
6	Personality	5	5
7	Personal Grooming	5	6
TOTAL		32	40

In this particular subject though it has been classified as practical, it maybe essential to take up certain theory classes and assignments this may include expert lectures, group discussion, plenary session etc.

DETAILED COURSE CONTENTS:

Chapter – 1 : **PRESENTATION SKILLS** :

Oral Presentation :

- Need of effective oral presentation.
- Characteristics of good oral presentation.
- Ways of Oral Presentation (Seminar, Viva-voce, Interview, Group Discussion, Lecturing, Power Point etc.)
- Gestures/Mannerism during oral presentation Media, methods used for effective oral presentation.
- Assessment of oral presentation.

Written Presentation :

- Need of written presentation.
- Characteristics of written presentation.

- Ways of written presentation (Report writing, manual, handout, notes etc.).
- Grammar, Punctuation, referencing paragraphing during written presentation.

Chapter – 2 : LEARNING TO LEARN SKILLS :

- Need of Learning to Learn Skills.
- Type of Learning Skills (Learning face to face, Individualized learning, Distance learning, Self-learning).
- Developing Learning to Learn Skills.

Chapter - 3 : STUDY SKILLS :

- Methods of Good Study Habits
- Note Taking
- Developing Reading Skills

Chapter – 4 : INFORMATION SEARCH :

- Objectives of information search.
- Ways of information search (Internet surfing, Library search, Abstracts, Journals, books etc.)
- Assimilation and presentation of information.

Chapter – 5 : TIME MANAGEMENT :

- Principles of Time Management.
- Time Management matrix.
- Criteria governing Time Management.
- Possible time waster

Chapter- 6 : PERSONALITY :

- Concept and meaning of personality
- Characteristics of good personality
- Factors influencing personality
- Types of personality.
- .Need for desirable personality for success
- Qualities of complete personality.

Chapter - 7 PERSONAL GROOMING:

- Posture and Health.
- Types of posture.
- Importance of posture.
- Factors affecting good health-diet, exercise personal cleanliness, sleep and rest.

- Use of cosmetics.
- Dress Code
- Physical Fitness and Inner Strength

INSTRUCTIONAL STRATEGIES:

- Lecture Method.
- Industrial visits.
- Expert Lecture.
- Demonstration
- Assignments-Individual and Group
- Group Discussions
- Presentation

LIST OF PRACTICALS

- Seminar Presentation on Specific topic for fixed time duration
- Information Collection on a particular topic followed by presentation in specified time duration.
- Visit to multinational outlet for observing personality traits of officials and preparing detailed report
- Demonstration exercise by personality experts
- Guest lectures by well known personality

LEARNING RESOURCES:

(d) Reference Books

Sl. No.	Title	Author, Publisher, Edition & Year
1	How to achieve success and happiness	Sultan Chand and Sons, New Delhi
2	How to develop effective personality	Dr Mittal and Agarwal CS
3	The Art of Public Speaking	Stephen E Lucas
4	Public Speaking and Influencing Business	Dale Carnegie

(b) Others:

- Video Programs.
- Learning Packages.
- Computer with internet facilities
- Television
- Charts.
